

Article

The Enlightenment and Paradigm Investigation of Qiuci Murals

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Abstract: The Qiuci murals, created in an important cultural center along the ancient Silk Road, embody visual culture and sustained interaction among Eastern and Western artistic traditions. However, their educational functions and underlying artistic paradigm remain insufficiently examined as an integrated field of inquiry. This study analyzed the artistic characteristics, cultural meanings, historical influences, and contemporary value of Qiuci murals. A multimethod research design combined a five-point Likert-scale survey involving 513 respondents with literature research, image analysis, cross-cultural comparison, and cultural interpretation. Survey findings indicated generally favorable and broadly consistent perceptions of the murals' cognitive, artistic, and social significance across age, sex, educational, and occupational groups. Historical and visual analyses demonstrated that the murals incorporated Indian, Persian, Central Asian, and Chinese influences while developing a distinct local paradigm expressed through color contrasts, diamond-grid compositions, figure modeling, narrative sequencing, and iconography. The study concludes that Qiuci murals should be understood not only as historical artworks but also as pedagogical and cultural heritage resources. Their continued relevance requires interdisciplinary scholarship, contextual interpretation, digital documentation, conservation, and integration into art and cultural education. The findings support the use of Qiuci mural heritage in intercultural learning and the transmission of Silk Road cultural history.

Keywords: art education; cultural heritage education; Qiuci murals; Silk Road cultural exchange

1. Introduction

Qiuci was an important political, religious, and cultural center along the ancient Silk Road. Its geographical position facilitated sustained contact among communities from China, India, Central Asia, and Western Asia. These interactions contributed to the emergence of a distinctive cultural environment in which religious ideas, visual conventions, artistic techniques, and social practices were transmitted, adapted, and localized. Among the most significant surviving expressions of this environment are the murals of the Qiuci grottoes, particularly those associated with the Kizil, Kumtura, and related cave complexes.

The Qiuci murals occupy an important place in the development of Buddhist grotto art. Their subject matter includes episodes from the life of the Buddha, Jataka narratives, karmic stories, Nirvana scenes, celestial beings, musicians, donors, religious teachers, and other figures connected with Buddhist belief and practice. These images were not produced solely as decoration. Within the historical context of the grottoes, they provided visual narratives through which moral principles, social values, religious doctrines, and collective memories could be communicated to audiences with different levels of textual or doctrinal knowledge, thereby reflecting a process of cultural integration along the ancient Silk Road.

The educational significance of these murals is closely connected with their visual and narrative structure. Religious narratives were translated into recognizable figures, actions, symbols, spatial arrangements, and sequential scenes. Through repeated

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encounters with these images, viewers could become familiar with concepts such as compassion, sacrifice, moral responsibility, karmic consequence, filial conduct, ethical cultivation, and the pursuit of wisdom, reflecting the localization and integration of Buddhist ideas within the broader cultural context of the region. The murals consequently served functions that may be described as moral formation, aesthetic education, cultural socialization, and the dissemination of ethical and philosophical values rooted in the local cultural tradition.

In this study, the term educational function refers broadly to this cultural cultivation and edification role. It concerns the capacity of mural art to influence cognition, values, emotions, and conduct through visual representation. Such influence may operate explicitly through recognizable religious stories or more indirectly through aesthetic experience, symbolic association, and participation in a culturally organized ritual or spiritual environment. The murals may therefore be examined not only as historical artworks but also as vehicles through which communities communicated normative ideas, formed cultural identities, and reflected the integration of diverse ethnic and cultural traditions.

The artistic significance of Qiuci murals is equally important. Their colors, figure types, compositional arrangements, line work, decorative patterns, and narrative modes reveal the interaction of multiple artistic traditions. Indian Buddhist imagery, Gandharan forms, Central Asian and Persian elements, and Chinese visual conventions were not simply reproduced in their original forms. They were selectively incorporated and creatively reorganized within a local artistic system, resulting in a distinctive synthesis. This process produced a recognizable Qiuci style characterized by strong color contrasts, stylized figures, rhythmic lines, compact narrative arrangements, and distinctive compositional devices such as diamond-shaped grids.

The notion of an artistic paradigm provides a means of examining the relationships among these formal, cultural, religious, and educational features. In this context, a paradigm does not refer merely to a single visual style. It denotes a relatively coherent system of artistic production and meaning that includes subject matter, compositional conventions, symbolic structures, narrative techniques, aesthetic principles, cultural influences, social functions, and cultural identity formation. Investigating this paradigm requires attention to both the visible characteristics of the murals and the historical conditions through which those characteristics acquired meaning.

Previous studies have made substantial contributions to the chronology, iconography, religious content, stylistic development, and intercultural features of Qiuci mural art. Nevertheless, these dimensions have often been treated separately. Art-historical inquiries have concentrated on dating, cave forms, painting techniques, and stylistic classification, while religious studies have focused on Buddhist narratives and doctrines. Cross-cultural research has examined the movement of artistic forms along the Silk Road, but the educational function of the murals has received comparatively less integrated examination. There remains a need to integrate artistic characteristics, cultural exchange, narrative content, educational influence, and contemporary heritage value within a unified analytical framework.

This need is especially relevant to art education, cultural heritage education, and the transmission of traditional Chinese cultural heritage. The murals provide material through which learners may examine visual storytelling, religious iconography, intercultural exchange, historical change, and the relationship between art and society. They also demonstrate that artistic works can function simultaneously as aesthetic objects, historical documents, educational media, and carriers of cultural memory. A more integrated understanding of the Qiuci murals may therefore support their use in teaching art history, visual culture, cultural diversity, heritage conservation, and Silk Road studies, and contribute to the preservation and promotion of China's rich cultural heritage.

The contemporary relevance of the murals also extends to their preservation and transmission. Physical deterioration, incomplete documentation, the current locations of mural fragments across various sites, and limited public understanding create challenges

for sustaining this heritage. Digital documentation, museum interpretation, educational programming, and interdisciplinary research may help preserve both the material features of the murals and the cultural knowledge associated with them. Effective preservation consequently requires more than technical conservation; it also requires the communication of the murals' historical, artistic, cultural, and educational meanings to contemporary audiences.

Against this background, the study examined Qiuci murals as a multidimensional form of cultural and educational expression. It combined the analysis of artistic and historical materials with survey-based evidence concerning respondents' perceptions of the murals' cognitive, artistic, and social significance. This approach was intended to connect formal and cultural interpretation with the continuing reception of the murals in contemporary society.

Objectives of the Study: This study aimed to investigate the educational function and artistic paradigm of Qiuci murals by examining their artistic characteristics, educational functions, historical influences, and contemporary relevance. Specifically, it sought to:

1. Analyze the artistic characteristics of Qiuci murals in terms of subject matter, composition, figure modeling, color, and narrative expression;
2. Examine the cultural and educational functions expressed through the murals' narratives and visual forms rooted in Buddhist traditions;
3. Identify the historical and cross-cultural factors that influenced the development and artistic style of Qiuci murals; and
4. Evaluate the contemporary value, preservation, transmission, and potential educational application of Qiuci mural art, and their contribution to the understanding of China's diverse cultural heritage.

2. Review of Related Literature

2.1. Historical Development and Artistic Characteristics of Qiuci Murals

The artistic development of the Qiuci murals is inseparable from the history of the ancient Qiuci kingdom and its position along the Silk Road. Historical accounts describe Qiuci as a center of political activity, Buddhist cultural exchange, music, and visual culture in the northwestern frontier region of ancient China. The movement of travelers, monks, merchants, and artisans through the region created conditions for the development of a complex mural tradition rather than a geographically isolated artistic style [1,2]. Early documentation and subsequent studies of Buddhist art provided important records of the iconography and stylistic features of the surviving grottoes [3,4].

Research on the visual language of the murals has examined their use of color, figure modeling, decorative elements, spatial organization, and narrative composition. The murals are distinguished by strong tonal contrasts, mineral pigments, rhythmic line work, stylized figures, and compositional systems adapted to the architectural surfaces of the caves. The color characteristics of decorative patterns have been specifically examined, while the formation and development of regional artistic features have been traced through the representation of trees in ancient Qiuci grotto murals [5,6]. These studies indicate that individual visual elements were not merely ornamental but participated in the formation of a recognizable regional style.

The relationship between Qiuci art and the artistic traditions of the Chinese Central Plains has also received attention. Central Plains characteristics were identified in Kizil murals, indicating that the visual tradition developed through continuous interaction and mutual enrichment rather than through a single source of influence [7]. Studies of cave types, principal statues, donors, plant motifs, and decorative structures further demonstrate that the Qiuci artistic system changed across historical periods while retaining distinctive regional conventions [8-11].

The artistic paradigm of Qiuci murals may therefore be understood as an evolving configuration of formal practices rather than a fixed style. Its recognizable qualities emerged from the combination of cave architecture, cultural and spiritual subject matter,

narrative needs, local preferences, available materials, contact with other visual cultures, and the integration of diverse cultural traditions. This historical approach is necessary because the meaning of color, composition, and figure representation cannot be separated from the cultural, spiritual, and social environments in which the murals were produced.

2.2. Cross-Cultural Exchange and the Localization of Buddhist Art

Qiuci's geographical location made it an important site of cultural transmission between South Asia, Central Asia, Western Asia, and China. Scholarship on the Silk Road emphasizes that artistic traditions circulated together with religious texts, languages, commodities, and populations. Historical documents and literary texts from diverse ethnic groups discovered along the Silk Road were examined as evidence of exchange between East and West, while Qiuci culture was situated within the broader historical development of the Silk Road [12]. Such studies support the interpretation of the murals as products of sustained intercultural contact.

The influence of Gandharan art is particularly notable in the formation of Buddhist figure representation and narrative imagery in the region. The relationship between Gandharan sculpture and folk literature was explored, while the development and transmission of Gandharan art were examined [13,14]. These bodies of work provide a comparative foundation for analyzing features such as drapery, bodily modeling, facial representation, compositional hierarchy, and scenes derived from Buddhist narratives. The murals did not simply reproduce Gandharan forms; they creatively reinterpreted and transformed external elements according to the spatial, cultural, spiritual, and aesthetic requirements of the Qiuci grottoes.

Cross-regional comparisons likewise suggest that Qiuci mural art participated in a wider network of cultural and spiritual imagery. For example, comparisons have been made between the Kizil frescoes and those of the ancient Church of Santa Maria in Rome, drawing attention to possible formal correspondences and differences between geographically distant cultural and artistic traditions [15]. Although such comparisons require historical caution, they demonstrate the value of examining how different cultural communities used visual form, monumental space, and cultural and spiritual narratives to structure collective experience.

Recent scholarship has continued to characterize Qiuci culture as a product of exchange and mutual learning. The Kizil Grottoes were presented as evidence of interaction among civilizations along the Silk Road, while the origins and influence of Qiuci culture were examined. Similarly, localized adaptations of Central Plains artistic elements were identified [16,17]. Together, these studies indicate that the distinctiveness of Qiuci art resulted not from cultural purity but from selective assimilation, reinterpretation, and synthesis.

The concept of localization is therefore central to the study of the murals. Imported Buddhist narratives and visual conventions acquired new forms when they entered the cultural environment of Qiuci. Local artists reorganized these elements through regional patterns, colors, architectural arrangements, and modes of storytelling. The resulting murals demonstrate how artistic exchange can produce an identifiable local paradigm while preserving traces of multiple cultural origins, and contributing to the rich tapestry of China's cultural heritage.

2.3. Buddhist Narratives and the Educational Function of Mural Art

The educational and cultural edification functions of Qiuci murals are grounded principally in their Buddhist-inspired narratives. These murals transformed cultural and spiritual teachings into visual sequences that could communicate with audiences beyond those capable of reading formal sacred texts, and thereby facilitated the transmission of cultural values across different social groups. Their stories provided models of conduct, representations of moral consequence, images of sacrifice, and accounts of the Buddha's life and final spiritual attainment. The pedagogical function of the murals consequently

operated through the integration of ethical and spiritual principles, narrative, symbolism, emotion, and visual experience.

Jataka narratives formed a major component of visual education within the Buddhist cultural tradition. The development of Jataka stories in Chinese Buddhism was examined, while Jataka murals in the Kizil Grottoes were studied. The movement from text to image was investigated by comparing narrative patterns in Indian, Kizil, and Dunhuang representations of selected Jataka stories. Such research demonstrates that the visual adaptation of narratives rooted in Buddhist traditions required deliberate decisions about sequence, gesture, setting, character identification, and the selection of morally significant episodes [18–20].

The educational significance of these stories derived from their exemplary structure. Narratives involving generosity, self-sacrifice, compassion, wisdom, or moral discipline presented conduct that audiences were expected to recognize and evaluate. Mural painting made abstract ethical and spiritual principles visible by embodying them in specific characters and actions. The arrangement of scenes within the cave also enabled cultural and spiritual learning to occur through movement, observation, ceremonial participation, and repeated exposure.

Other narrative categories reinforced this instructional function. The narrative art of karmic and Buddha-biographical imagery was analyzed in terms of characters, spaces, and concealed details [21]. The representation of Lady Maya in Kizil murals was examined, illustrating how episodes from the Buddha's biography were visually structured. The image of the Buddha suffering nine offenses was investigated, while the conceptual framework of Buddhist thought in the Qiuci grottoes was examined [22,23]. These studies connect the formal properties of mural imagery with the conceptual and ethical frameworks communicated through them.

Nirvana imagery also provided instruction concerning death, spiritual transcendence, impermanence, and the continuity of Buddhist cultural tradition. The Nirvana image in Cave 38 of the Kizil Grottoes was analyzed, while Nirvana imagery in Kizil was studied more broadly [24,25]. The cultural and spiritual significance of such scenes extended beyond the representation of a historical event. They helped organize communal understanding of spiritual attainment, loss, remembrance, and the continuity of spiritual and cultural traditions.

The murals' educational function was therefore multidimensional. They transmitted cultural and spiritual knowledge, encouraged moral reflection, shaped emotional responses, supported ceremonial practice, and introduced viewers to the aesthetic order of Buddhist cultural space. Their cultural and edifying role should not be interpreted only as direct instruction. It also included the gradual formation of values and cultural memory through symbolic and aesthetic experience.

2.4. Contemporary Inheritance, Preservation, and Educational Application

The contemporary value of Qiuci murals depends on both material conservation and meaningful cultural transmission. Their deterioration, fragmentation, distribution across various locations, and restricted accessibility create challenges for researchers, educators, and the public. Technical difficulties and critical issues associated with the digitization of the Qiuci grotto murals were identified [26]. Digital preservation may facilitate documentation, reconstruction, comparative analysis, and public access, but it also requires reliable imaging, metadata, contextual explanation, and long-term data management.

Contemporary transmission and creative adaptation further involve the incorporation of mural elements in present-day visual and material culture. The innovative use of Qiuci floral elements in costume design was examined, while the application of traditional grotto patterns in cultural and creative products was investigated [27,28]. These applications demonstrate that historical motifs can acquire new forms and audiences. However, creative adaptation must remain attentive to the cultural, spiritual, historical, and artistic meanings of the original imagery to avoid

reducing heritage to detached decorative elements, and should be grounded in a comprehensive understanding of the heritage context.

The art of Qiuci Buddhist cave murals and their contemporary value were considered [29]. Such scholarship supports a broader conception of preservation in which heritage remains socially meaningful through education, research, museums, design, and public interpretation. The music and dance represented in the murals also provide material for interdisciplinary learning in art, performance, history, and cultural and spiritual traditions [30].

For art education, the murals offer opportunities to examine visual storytelling, stylistic comparison, iconography rooted in Buddhist cultural traditions, cultural integration and exchange, and conservation ethics. Their study can connect formal analysis with larger questions concerning how societies communicate beliefs and values through images. Digital models and curated visual resources may expand access to the grottoes, but educational materials should distinguish documented historical interpretation from speculation [31].

Contemporary inheritance should therefore be understood as a process of informed transmission and creative revitalization rather than simple reproduction. Conservation protects the surviving material object, while education preserves the interpretive knowledge necessary to understand it. These two functions are mutually reinforcing: preservation without interpretation may limit the engagement of heritage with contemporary communities, whereas interpretation without responsible conservation may diminish the historical integrity of the source material.

2.5. Synthesis and Research Gaps

The reviewed literature establishes that Qiuci murals developed within a historically dynamic environment shaped by Buddhist cultural exchange, Silk Road mobility, regional artistic practices, and interaction and exchange among multiple civilizations. Existing studies have documented their historical background, visual characteristics, narrative traditions, intercultural influences, and contemporary applications [3,16,23]. Research on Jataka, karmic, biographical, and Nirvana imagery further demonstrates that the murals communicated cultural, spiritual, and ethical ideas through visual narrative [18,20,21,24].

Despite these contributions, the literature has tended to develop along separate disciplinary lines, including art history, Buddhist studies, narrative analysis, cultural exchange, and heritage preservation. Artistic form is frequently examined separately from educational function, while contemporary applications are not always connected to the historical and conceptual meanings of the murals. The literature also provides limited empirical evidence regarding how contemporary audiences perceive the murals' cognitive, artistic, and social significance.

The present study responds to these gaps by integrating visual, historical, cultural, and educational analysis within an artistic-paradigm framework, and by offering a holistic perspective that bridges disciplinary divides. It further supplements documentary and image-based interpretation with survey evidence concerning contemporary perceptions. This integrated approach treats Qiuci murals as artistic objects, historical documents, educational media, and cultural heritage resources rather than as isolated examples of Buddhist decoration, and recognizes their significance within the broader context of China's cultural heritage.

3. Methodology

3.1. Research Design

The study employed a multimethod descriptive design that combined a quantitative survey with documentary, visual, historical, and comparative analysis. The survey component examined contemporary respondents' awareness of the educational function of Qiuci murals, their perceptions of the murals' artistic paradigm, and their assessment of the murals' social influence. The non-survey component used literature research, image

analysis, cultural interpretation, and cross-regional comparison to examine the murals' artistic characteristics, narratives rooted in Buddhist traditions, intercultural influences, and contemporary heritage value.

This design was appropriate because the study addressed two related but distinct forms of evidence. The survey measured present-day perceptions, while the documentary and visual analyses examined the historical, artistic, cultural and spiritual, and educational meanings of the murals. The findings from these components were interpreted together but were not treated as equivalent: survey responses represented respondents' perceptions, whereas the artistic and historical claims were derived from the examined literature and mural images.

3.2. Respondents and Documentary Sources

The survey respondents consisted of individuals from different regions of China who possessed at least some familiarity with mural art, cultural heritage, art rooted in religious or spiritual traditions, or related educational subjects. The participant categories included students, educational practitioners, art practitioners, company employees, and respondents from other occupations. Demographic information was collected according to sex, age, educational attainment, and occupational group.

The dissertation reported a final dataset of 513 valid online questionnaires. The respondents represented several age and educational groups, allowing the study to describe variations in perceptions across demographic categories. Because the respondents were recruited online and were required to possess some understanding of the research topic, the sample should be interpreted as a topic-relevant respondent group rather than as a statistically representative sample of the entire Chinese population.

The documentary component drew on the scholarly literature, historical accounts, reproduced mural images, museum materials, and comparative examples assembled in the dissertation. The principal visual materials involved murals from the Kizil, Kumtura, and related Qiuci grottoes. Comparative materials from Gandhara, Central Asia, Persia, Dunhuang, the Chinese Central Plains, and other cultural and artistic traditions were used when examining the development and localization of artistic forms.

3.3. Sampling Technique

A preliminary sample-size calculation was conducted using the Raosoft calculator. Based on an assumed population of 20,000, a 95% confidence level, a 5% margin of error, and a 50% response distribution, the calculation produced a minimum planning estimate of 377 respondents. The final number of 513 valid responses exceeded this estimate.

The actual recruitment procedure was best characterized as purposive online sampling with geographic and demographic balancing. Respondents were selected according to their relevance to the subject, particularly their familiarity with art, education, cultural and spiritual imagery, or cultural heritage. The researcher also attempted to prevent excessive concentration in highly developed first-tier cities by reducing recruitment from those locations and distributing the questionnaire across other regions. Since the dissertation did not identify a complete sampling frame or document random selection from a defined population, the procedure was not treated as probability sampling in the revised article.

3.4. Research Instrument

The researcher used a structured questionnaire containing 25 questions divided into four parts. The first four questions collected demographic information concerning sex, age, educational attainment, and occupation. The remaining 21 items measured three substantive dimensions: cognitive and educational-function awareness (10 items), artistic paradigm (6 items), and contemporary social influence (5 items).

The substantive items used a five-point Likert-type scale: 5 = strongly agree, 4 = agree, 3 = moderately agree or neutral, 2 = disagree, and 1 = strongly disagree. Higher scores indicated stronger awareness or more favorable perceptions of the measured dimension.

Internal-consistency analysis produced Cronbach's alpha coefficients of .900 for cognitive and educational-function awareness, .853 for artistic paradigm, and .836 for contemporary social influence. The overall reliability coefficient for the 21 substantive items was reported as .913, indicating acceptable to high internal consistency.

For the documentary and visual component, the study did not employ a separate standardized instrument. Instead, the murals were examined according to recurring analytical categories derived from the objectives and conceptual framework: subject matter, color, composition, figure modeling, narrative organization, cultural and spiritual significance, intercultural influence, educational function, and contemporary inheritance.

3.5. Data-Gathering Procedure

The questionnaire was administered electronically through WJX.com. WeChat and QQ were used to communicate with prospective respondents and distribute the survey link. The questionnaire included information concerning the study's academic purpose and instructions for completion. Distribution and collection took approximately one week.

After retrieval, the responses were screened, coded, grouped, and prepared for statistical analysis. The dissertation reported 513 valid questionnaires, although it described this total as combining pilot and formal-survey responses. The documentary and visual materials were collected from the literature and image sources used in the dissertation and were organized according to the major analytical themes of the study.

3.6. Data Analysis

Survey data were processed using SPSS. Frequencies and percentages were used to describe the respondents' demographic characteristics. Item scores and grouped responses were summarized to identify patterns in cognitive awareness, artistic-paradigm perception, and contemporary social influence. Results were also compared descriptively across age, sex, educational-attainment, and occupational groups.

The documentary and visual materials were examined through formal analysis of color, line, composition, figure modeling, and decorative patterns; iconographic and narrative analysis of Jataka, karmic, Buddha-biographical, and Nirvana imagery; comparative analysis of Qiuci, Indian, Gandharan, Persian, Central Asian, Dunhuang, and Central Plains traditions; and cultural interpretation of the murals' cultural and spiritual, moral, political, aesthetic, educational, and heritage-related meanings.

The survey and documentary findings were then integrated thematically. The survey evidence was used to describe contemporary perceptions, while the visual and documentary evidence supported the historical and artistic interpretation of the murals.

3.7. Ethical Considerations

Participation in the survey was voluntary. Respondents were informed that the questionnaire was intended for academic research, and consent was obtained before participation. The survey was administered anonymously, and the researcher stated that individual responses and personal information would remain confidential and would not be disclosed for non-research purposes. The collected data were used only for the study and reported in aggregated form.

4. Results and Discussion

4.1. Contemporary Perceptions of Qiuci Murals

The survey included 513 respondents from different age, sex, educational, and occupational groups. The largest age group consisted of respondents aged 26-35 years (198, 38.6%), followed by those aged 36-45 years (103, 20.1%) and 18-25 years (94, 18.3%). Respondents aged 46 years or older accounted for 13.5%, while those younger than 18 years comprised 9.6% of the sample.

The distribution by sex was nearly balanced, with 266 males (51.9%) and 247 females (48.1%). In terms of educational attainment, 237 respondents (46.2%) were undergraduates or bachelor's degree holders, 121 (23.6%) had completed high school, technical school, or vocational education, and 94 (18.3%) held a master's degree or higher.

The remaining respondents had junior-high-school education (7.6%) or primary education and below (4.3%).

Educational practitioners formed the largest occupational group (159, 31.0%), followed by art practitioners (146, 28.5%), students (102, 19.9%), company employees (82, 16.0%), and respondents in other occupations (24, 4.7%). The substantial representation of education and art practitioners was relevant to the study because these groups were likely to have greater exposure to visual culture, art education, and cultural heritage. Table 1 consolidates the descriptive results for the three substantive dimensions measured in the survey.

Table 1. Descriptive Results for Perceptions of Qiuci Murals

Dimension	Number of Items	Mean	Standard Deviation	Cronbach's alpha
Cognitive and educational-function awareness	10	3.720	0.892	0.900
Artistic paradigm	6	3.815	0.865	0.853
Contemporary social influence	5	3.736	0.920	0.836

Note. Scale: 1 = strongly disagree to 5 = strongly agree. The overall reliability coefficient for the 21 substantive items was $\alpha = .913$.

The artistic-paradigm dimension obtained the highest overall mean ($M = 3.815$, $SD = 0.865$). This result indicates that respondents generally recognized the distinctive visual style, composition, color system, and cultural integration represented by the murals. Cognitive and educational-function awareness obtained a mean of 3.720, while contemporary social influence obtained a mean of 3.736. All three means were above the scale midpoint, indicating generally favorable perceptions, although the absence of predefined interpretive ranges prevents their formal classification as high or very high.

Age-group means displayed relatively limited descriptive variation. Respondents aged 26-35 recorded the highest cognitive-awareness mean ($M = 3.828$), whereas those aged 18-25 recorded the lowest ($M = 3.638$). Artistic-paradigm scores ranged only from 3.750 among respondents aged 46 or older to 3.847 among those aged 26-35. Social-influence scores ranged from 3.633 among respondents aged 18-25 to 3.837 among respondents aged 46 or older. These results suggest that favorable recognition of the murals was present across generations, although older respondents appeared slightly more favorable regarding their contemporary social influence.

Male and female respondents reported similar cognitive and artistic-paradigm ratings. Females obtained a slightly higher cognitive-awareness mean ($M = 3.739$) than males ($M = 3.703$), while males reported a higher artistic-paradigm mean ($M = 3.850$) than females ($M = 3.778$). The largest descriptive difference was observed in social influence, for which males obtained a mean of 3.810 and females obtained 3.656. However, because the dissertation did not report a test of statistical significance for these differences, they should be interpreted only as descriptive patterns.

Educational attainment showed a modest U-shaped pattern in several dimensions. Respondents with primary education or below reported means of 3.791 for cognitive awareness, 3.805 for artistic paradigm, and 3.756 for social influence. Scores declined slightly among the intermediate educational groups before increasing among respondents with a master's degree or higher, who recorded the highest means for cognitive awareness

($M = 3.857$), artistic paradigm ($M = 3.960$), and social influence ($M = 3.803$). The pattern may indicate that advanced education supports more developed engagement with artistic and historical materials. The relatively favorable ratings among respondents with lower formal education may also reflect the accessibility of visual narratives, which can communicate ideas without requiring specialized textual knowledge.

Occupational groups likewise produced broadly comparable ratings. The small other-occupation category recorded the highest means, but it contained only 24 respondents and should not be treated as representative. Among the larger groups, art practitioners recorded the highest cognitive-awareness mean ($M = 3.757$), company employees recorded the highest artistic-paradigm mean ($M = 3.863$), and educational practitioners recorded the highest social-influence mean ($M = 3.768$). Students, educators, art practitioners, and company employees all obtained means above 3.68 across the three dimensions.

Collectively, the survey findings indicate that respondents generally perceived Qiuci murals as artistically distinctive, cognitively meaningful, and socially relevant. The similarity of the descriptive scores across demographic categories suggests that appreciation of the murals is not confined to a single age, educational, or occupational group. Nevertheless, the results represent the views of a purposively recruited, topic-relevant sample rather than the entire Chinese population.

4.2. Artistic Characteristics and Cross-Cultural Formation

The visual and documentary analysis identified three broad categories of subject matter: Buddhist narratives and figures, secular life, and decorative-symbolic imagery. Buddhist material constituted the dominant category and included accounts of the Buddha's life, Jataka stories, karmic narratives, Nirvana scenes, preaching scenes, Buddhas, bodhisattvas, monks, guardian deities, flying figures, and heavenly motifs.

Secular imagery included donors, rulers, officials, merchants, monks, musicians, dancers, agricultural activities, and other scenes of daily life. Donor images documented changes in social position and patronage. Earlier donors were depicted as relatively small and subordinate figures, whereas later donor portraits became more elaborate and prominent. Music and dance scenes were particularly significant because they preserved visual evidence of Qiuci's performance culture. The dissertation identified 27 types of musical instruments represented in the murals, including string, wind, and percussion instruments. The five-stringed pipa appeared most frequently and was commonly depicted in ensembles or in conjunction with dancing figures.

Decorative motifs included flowers, vines, animals, mountains, heavenly motifs, and repeating geometric structures. These images did not function merely as ornament. Animal figures were frequently connected with Jataka narratives, while floral and heavenly motifs contributed to the construction of culturally significant visual environments. The repetition and adaptation of these motifs across caves also documented stylistic continuity and change.

Color was a defining element of the Qiuci artistic system. The murals used earthy red, ochre, blue, green, vermilion, white, yellow, and blue-green pigments. Cool colors were frequently placed against warm tones, while areas of white moderated the intensity of the composition. Early paintings tended to employ warmer tonal systems, whereas later examples increasingly used earthy red and reduced amounts of azurite. Gold powder or foil was sometimes used to intensify the visual splendor of Buddhist imagery.

The use of concave-convex shading strengthened the three-dimensional appearance of figures. Gradated coloration was applied according to bodily form rather than as flat surface decoration. This method, associated with Indian and Central Asian painting traditions, was localized within the Qiuci visual system. The resulting figures combined volumetric modeling with controlled linear definition.

Composition was equally distinctive. The diamond-grid arrangement, especially prominent on vaulted ceilings, divided the surface into individual narrative units while maintaining an integrated visual field. Mountain patterns placed within the diamond

forms could signify Mount Sumeru or create an idealized landscape for Buddhist stories. Each unit could contain a separate Jataka or karmic episode, allowing numerous narratives to be presented within a coherent architectural scheme.

Centered, symmetrical, and scattered-perspective compositions were also used. Preaching scenes commonly positioned the Buddha as the dominant central figure, surrounded by orderly groups of disciples, donors, celestial beings, or listeners. Variation in gesture, bodily orientation, and facial direction prevented these arrangements from becoming entirely static. Scattered perspective permitted several viewpoints and narrative moments to coexist on one surface, supporting the representation of events that occurred in different places or times.

Figure modeling combined foreign and local practices. Buddha figures showed the influence of Gandharan, Mathuran, and Gupta art, while donor and secular figures incorporated regional characteristics. Thin and relatively uniform iron-wire lines defined the body and clothing, while U-shaped lines represented folds in robes. Exaggerated muscle contours and shaded abdominal forms produced a distinctive anatomical treatment that differentiated the Kizil figures from those of many other grotto traditions. Female figures sometimes adopted the Indian three-bend or S-shaped posture, while clothing, ornaments, hairstyles, and physical modeling reflected interaction among Indian, Central Asian, Persian, and local conventions.

The murals therefore did not merely imitate external sources. Their artistic character resulted from selective adaptation. Indian narrative and bodily conventions, Gandharan modeling, Persian decorative and royal imagery, Central Asian motifs, and Chinese compositional principles were reorganized into a locally coherent form. This localization explains why Qiuci art is simultaneously recognizable as part of transregional Buddhist culture and as an independent regional tradition.

4.3. Educational and Civilizing Functions of the Murals

The analysis found that the educational function of Qiuci murals operated through visual accessibility, narrative exemplification, emotional engagement, and repeated exposure. The murals translated ethical and spiritual concepts into characters, actions, consequences, and symbolic settings. This made cultural and spiritual education accessible to audiences who may not have possessed advanced literacy or formal knowledge of Buddhist cultural texts.

Jataka stories communicated compassion, generosity, courage, self-sacrifice, wisdom, and responsibility toward others. The story of the Monkey King outwitting the water demon, for example, portrayed leadership, observation, and practical intelligence. The story of Sava burning his arms to guide merchants through danger represented self-sacrifice and dedication to the welfare of others. These narratives conveyed abstract principles by showing morally exemplary conduct in concrete situations.

Karmic narratives emphasized the relationship between conduct and consequence. Images of reward, punishment, rebirth, and retribution presented the moral order within the Buddhist cultural tradition in a readily interpretable form. Their educational purpose was not limited to transmitting ethical and conceptual frameworks. They encouraged viewers to examine their conduct, avoid harmful actions, and cultivate morally valued behavior.

Buddha-biographical scenes explained major episodes in the life of Siddhartha Gautama, including birth, renunciation, enlightenment, teaching, and spiritual attainment. Preaching scenes, particularly representations of the first teaching at Deer Park, positioned the Buddha at the center of an organized community of listeners. These compositions reinforced both conceptual authority and the social structure of cultural and spiritual education.

Nirvana paintings addressed impermanence, death, suffering, and spiritual transcendence. The reclining Buddha, grieving disciples, and solemn setting visually organized emotional responses to death. Rather than presenting death solely as loss, the images connected it with aspirations toward spiritual transcendence. Their educational

function involved reshaping attitudes toward mortality and encouraging reflection on moral and spiritual development.

The murals also supported filial and social ethics. The story of Shanmoja, who continued to care for his blind parents even after being wounded by a king, connected Buddhist moral instruction with the broader cultural value of filial piety. The narrative was repeatedly depicted in different caves, suggesting that its moral message possessed sustained importance. Through the character's concern for his parents, absence of resentment, and eventual restoration, the story provided an example of devotion, forgiveness, and social responsibility.

The cultural and edifying function was not exclusively moral or doctrinal in nature. It included aesthetic education by training viewers to perceive symbolic color, gesture, narrative sequence, spatial order, and visual harmony. It also performed a political function. Images of rulers as donors or figures associated with Buddhist authority could legitimize royal power and present political hierarchy as compatible with cultural and spiritual order. The positioning of major deities and rulers at visual centers, surrounded by subordinate figures, communicated authority through compositional structure.

Accordingly, the educational function of the murals can be classified into four interconnected forms: cultural and spiritual education through Buddhist conceptual frameworks and ceremonial meanings; moral education through narratives of compassion, sacrifice, filial piety, wisdom, and karmic responsibility; aesthetic and cultural education through artistic form, symbolism, music, dance, and cultural exchange; and political-social education through representations of hierarchy, patronage, royal legitimacy, and communal order.

These functions operated simultaneously. A Jataka painting could convey conceptual frameworks, represent moral action, provide an aesthetic experience, and support the institutional and cultural authority of Buddhist traditions and their patrons.

4.4. Artistic Paradigm and Contemporary Heritage Value

The findings support an interpretation of the Qiuci artistic paradigm as a system composed of four closely related dimensions. The first is a formal dimension, encompassing color contrasts, line work, shading, figure modeling, decorative patterns, diamond-grid compositions, centered arrangements, and scattered perspective. The second is a narrative-iconographic dimension, encompassing Jataka, karmic, Buddha-biographical, Nirvana, donor, celestial, musical, and secular imagery.

The third is an intercultural dimension. The murals incorporated and transformed elements associated with India, Gandhara, Persia, Central Asia, and the Chinese Central Plains. Their distinctiveness arose from the internal organization of these diverse elements rather than from the absence of external influence. The fourth is a social-educational dimension, through which art supported cultural and spiritual exchange and education, moral formation, cultural memory, political authority, and aesthetic experience.

These dimensions were mutually dependent. The diamond-grid composition was simultaneously a formal device, a means of organizing stories, a regional adaptation of transregional religious art, and a pedagogical structure that separated narratives into understandable units. Similarly, concave-convex shading was a technical method derived from broader artistic exchange but was used locally to increase the emotional and expressive and spiritual presence of represented figures.

The contemporary value of the murals was identified in four principal areas. First, they retain artistic and aesthetic value as examples of sophisticated color organization, line work, figure modeling, spatial design, and narrative painting. Second, they possess historical and documentary value because their images preserve information about clothing, architecture, religion, patronage, music, dance, social hierarchy, and cultural contact that may not be adequately recorded in surviving texts.

Third, the murals have ideological and educational value. They provide primary visual material for the study of Buddhism, moral narratives, intercultural communication, political and cultural relationships, and the social role of art. Fourth, they possess

contemporary heritage value because they can support art education, cultural-history instruction, museum interpretation, tourism, digital humanities, and intercultural learning.

The dissertation proposed several approaches to contemporary inheritance. These included high-resolution digital imaging, three-dimensional modeling, virtual exhibitions, animation-based reinterpretation, museum and public exhibitions, applications in clothing and cultural-product design, training in mural techniques, and educational use of folk motifs and narratives. It also proposed the use of artificial intelligence for restoration support, visual reconstruction, style analysis, and creative interpretation.

These approaches should nevertheless be distinguished according to purpose. Digital recording and three-dimensional modeling primarily support documentation, conservation, and access. Animation, fashion, and cultural-product design support public engagement and creative transmission. Artificial intelligence may assist analysis and reconstruction, but any reconstructed content should be transparently identified and should not be presented as equivalent to the surviving historical artifact. The contemporary use of mural elements should likewise preserve their provenance and cultural context rather than treating them as isolated decorative motifs.

4.5. Discussion

The survey and visual analyses converge on the finding that Qiuci murals possess continuing artistic, cognitive, and social relevance. Respondents rated artistic paradigm most favorably, suggesting that the murals' visual distinctiveness may be their most immediately recognizable quality. This corresponds with studies emphasizing the murals' color systems, decorative forms, modeling, and compositional arrangements. The results also support the view that Qiuci art developed through selective cultural synthesis rather than through simple imitation [7,16].

The generally favorable cognitive and educational-function ratings are consistent with the narrative structure of the murals. Jataka, karmic, biographical, and Nirvana paintings converted ethical and conceptual principles into visual episodes that could be observed, remembered, and discussed. Prior studies have similarly shown that Buddhist narratives were repeatedly adapted from texts into images to communicate exemplary behavior and cultural and spiritual meaning [18; 20; 21; 24].

The limited descriptive variation among demographic groups suggests that the murals may communicate across different audiences. This is plausible because visual narrative does not depend entirely on specialized textual literacy. However, the survey instrument combined familiarity, agreement, appreciation, and perceived influence within broad dimensions. The findings should therefore be interpreted as general perceptions rather than precise measures of actual historical knowledge or learning outcomes.

The artistic analysis further demonstrates that education was embedded in form rather than added to the murals as a separate function. Composition directed attention toward important figures; sequential scenes organized moral narratives; bodily expression intensified emotional meaning; and color distinguished culturally significant, dramatic, or symbolically important elements.

The relationship between artistic transmission and cultural localization is also significant. External influences did not diminish the regional identity of Qiuci art. Instead, Indian, Gandharan, Persian, Central Asian, and Chinese elements were transformed within a locally meaningful artistic and cultural and spiritual environment. This finding supports the treatment of the murals as evidence of intercultural learning along the Silk Road rather than as products attributable to a single civilizational source.

The study's contemporary implications are particularly relevant to art and heritage education. Digital preservation can expand access to fragile and geographically restricted murals, while carefully designed educational resources can connect formal analysis with cultural and art history, cultural exchange, and conservation ethics. Existing research on

digitization and contemporary adaptation likewise identifies digital documentation and creative reinterpretation as major paths for sustaining Qiuci heritage.

The statistical findings, however, remain descriptive. The dissertation did not report valid significance tests for differences across demographic groups, and its regression output did not sufficiently identify the dependent variable or establish a defensible model. Consequently, this revised article does not claim statistically significant differences, predictive relationships, or causal effects. Its empirical contribution is limited to documenting the generally favorable perceptions of the surveyed respondents and interpreting those perceptions alongside the documentary and visual evidence.

Overall, the study indicates that the Qiuci murals should be understood as an integrated artistic and educational system. Their visual language communicated cultural and spiritual values, morality, social order, cultural identity, and intercultural exchange. Their artistic paradigm was therefore not defined only by stylistic appearance but by the relationship among form, narrative, cultural transmission, and social function.

5. Conclusions, Recommendations, and Implications

5.1. Conclusions

The study concludes that the artistic identity of Qiuci murals is defined by the integration of subject matter, visual form, narrative organization, and intercultural adaptation. Their principal artistic characteristics include Buddhist and secular themes, strong contrasts between warm and cool pigments, concave-convex shading, controlled linear modeling, centered and symmetrical arrangements, scattered perspective, and the distinctive use of diamond-grid compositions. These elements formed a recognizable regional style rather than an unmodified reproduction of artistic traditions originating outside Qiuci.

The murals demonstrate that cultural exchange did not eliminate local artistic identity. Indian Buddhist narratives, Gandharan and Mathuran figure conventions, Persian and Central Asian motifs, and Chinese compositional elements were selectively adopted and reorganized within the historical, cultural, spiritual, and aesthetic environment of Qiuci. The artistic paradigm of the murals is therefore best understood as a localized synthesis produced through sustained contact among civilizations along the Silk Road.

The cultural and edifying function of the murals was embedded in their narrative and visual structure. Jataka stories, karmic narratives, scenes from the Buddha's life, Nirvana imagery, and accounts of filial conduct transformed ethical and spiritual principles into visible actions and consequences. Through these narratives, the murals communicated compassion, sacrifice, wisdom, responsibility, filial piety, impermanence, spiritual discipline, and karmic accountability. Their educational role included cultural and spiritual education, moral formation, aesthetic development, cultural socialization, and the legitimization of political and cultural authority.

The survey findings further indicate that the respondents generally recognized the cognitive, artistic, and social significance of Qiuci murals. Artistic-paradigm perceptions obtained the highest mean among the three measured dimensions, although cognitive and social-influence ratings were likewise above the scale midpoint. The relatively similar descriptive results across age, sex, educational, and occupational groups suggest that appreciation of the murals was not limited to a single demographic category. However, these findings represent the views of the surveyed respondents and cannot be generalized to the entire population of China because the study used purposive online recruitment.

The artistic paradigm of Qiuci murals comprises four interrelated dimensions: formal, narrative-iconographic, intercultural, and social-educational. The formal dimension includes color, line, modeling, composition, and decorative structure. The narrative-iconographic dimension encompasses Buddhist stories, devotional and spiritual figures, donors, musicians, dancers, and secular scenes. The intercultural dimension reflects the localization of multiple visual traditions, while the social-educational dimension concerns

the murals' cultural and spiritual, ethical, aesthetic, political, and social functions. The paradigm is therefore broader than style alone; it describes the relationship among artistic form, cultural exchange, narrative communication, and social purpose.

The contemporary significance of Qiuci murals extends beyond their status as historical artworks. They remain valuable as records of Silk Road exchange, Buddhist cultural traditions, performance traditions, material culture, social hierarchy, and artistic practice. They also constitute relevant resources for art education, heritage education, intercultural learning, museum interpretation, and digital humanities. Their continued value depends on preserving both the surviving material images and the historical and cultural knowledge required for their responsible interpretation.

5.2. Recommendations

Educational institutions offering art, history, religion, cultural studies, and heritage-related programs should integrate selected Qiuci mural materials into their curricula. Instruction should move beyond the identification of visual motifs and should connect formal analysis with Buddhist narratives, Silk Road exchange, cultural localization, and conservation ethics.

Museums, universities, and cultural-heritage institutions should collaborate in developing contextualized digital repositories. These repositories should include high-resolution images, cave and figure identification, chronological information, provenance, translations, iconographic explanations, and documentation of restoration or reconstruction. Digitally reconstructed portions must be clearly differentiated from surviving historical material.

Conservation agencies should prioritize systematic digital recording, pigment documentation, three-dimensional modeling, and condition monitoring of vulnerable murals. Digital technologies should supplement rather than replace physical conservation. Where mural fragments are held by different institutions, interoperable catalogues and shared metadata should be developed to support comparative research and virtual reconstruction.

Creative adaptations in fashion, animation, exhibitions, cultural products, and multimedia should preserve the provenance and cultural meanings of the original motifs. Designers and cultural producers should consult art historians, Buddhist-studies scholars, and heritage specialists to avoid decontextualized or inaccurate use of sacred imagery.

Researchers should adopt interdisciplinary approaches combining art history, archaeology, religious studies, linguistics, anthropology, conservation science, education, and digital humanities. This is particularly necessary because the scarcity of written records and the loss of historical languages complicate the interpretation of inscriptions, symbols, and narrative details.

Further empirical studies should improve the survey design by using clearly defined constructs, validated measures, and a documented sampling frame. Pilot-test responses should be separated from the final analytical dataset. Future research may also examine actual learning outcomes before and after exposure to Qiuci mural-based instructional materials rather than relying only on self-reported awareness and perceptions.

Comparative and field-based studies should document differences among the Kizil, Kumtura, Simsim, and other Qiuci grotto complexes. Researchers should record the specific caves, images, periods, and source institutions used in analysis so that interpretations can be independently assessed.

Artificial intelligence may be employed for image enhancement, pattern identification, fragment matching, and provisional reconstruction. However, AI-generated reconstructions should be transparently labeled, reviewed by qualified specialists, and excluded from evidentiary claims unless independently supported by archaeological, historical, or technical documentation.

5.3. Implications of the Study

5.3.1. Theoretical Implications

The study expands the concept of an artistic paradigm beyond a classification of visual style. In the case of Qiuci murals, a paradigm includes the interaction of formal conventions, religious narratives, intercultural processes, and educational functions. This integrated conception is useful for examining other forms of sacred and heritage art in which visual characteristics cannot be separated from ritual, moral, political, and social meanings.

The findings also reinforce the view that cultural hybridity and regional distinctiveness are not opposing conditions. Qiuci art became distinctive precisely through the selective transformation of multiple cultural influences. This provides a framework for understanding artistic localization as an active process of selection, adaptation, and reorganization rather than passive borrowing.

5.3.2. Educational Implications

The murals demonstrate the historical use of visual narrative as a pedagogical medium. Their composition, gesture, symbolism, sequencing, and emotional intensity allowed doctrinal and ethical concepts to be communicated through images. This supports the use of visual heritage in contemporary teaching, particularly in art education, moral education, intercultural studies, history, and religious-literacy programs.

Their instructional use should nevertheless remain analytical rather than devotional. Educators should present the murals as historical and cultural materials while respecting the religious traditions from which they emerged. Such an approach can encourage visual literacy, historical reasoning, cultural sensitivity, and critical engagement with the relationship between art and social values.

5.3.3. Institutional and Heritage Implications

Preservation institutions should treat education and interpretation as components of conservation. Protecting the physical mural without preserving its narrative, historical, and cultural context would limit its long-term public significance. Conversely, extensive reproduction without adequate conservation and attribution may weaken the integrity of the heritage resource.

Institutional partnerships among grotto-management agencies, museums, universities, digital-technology specialists, and international collections can support more complete documentation. Such collaboration is particularly important because portions of Qiuci mural heritage are dispersed across locations and institutions.

5.3.4. Methodological Implications

The study illustrates the value of combining survey evidence with documentary and visual analysis, but it also reveals the need to maintain clear distinctions among evidence types. Public perception cannot establish historical meaning, while iconographic interpretation cannot substitute for measured contemporary reception. Future multimethod studies should specify how each form of evidence addresses a particular research question and how the findings are integrated.

The survey results should be regarded as descriptive rather than causal or nationally representative. This limitation emphasizes the need for more rigorous sampling, clearer construct definition, and inferential procedures aligned with the research objectives.

5.3.5. Social and Cultural Implications

Qiuci murals offer a concrete historical example of cultural interaction across the Silk Road. Their study can contribute to contemporary discussions of cultural diversity by demonstrating how communities create coherent local traditions from multiple sources. They also provide a basis for public understanding of cultural exchange as a process of mutual influence, adaptation, and creative transformation rather than one-directional transmission.

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